

emulsifier, along with other desired ingredients such that an intermediate gel is formed. Further, the '551 reference teaches that the amount of emulsifier can be reduced because thickeners can be added. As long as lecithin and/or the thickener is present in combination with the lower amount of emulsifier, the '551 gel is clearly not self-structured and one of ordinary skill in the art would understand that the '551 gel is unlike that of the present invention. The '551 reference suggests that the amount of the emulsifier can be reduced not in the absolute sense but on a contingent basis. As previously mentioned in Applicants Response of February 5, 2004, at column 25, line 56 to column 26, line 7, of the '551 reference it is taught that the amount of emulsifier is obtained because it is possible for thickeners to be used.

Advantageous O/W microemulsions and microemulsion gels can be obtained, the proportion of the O/W emulsifier for example being less than . . . 15% by weight, based on the total weight of the microemulsion . . . , it being possible for the thickener or thickeners used according to the invention to be added at any point in time of the preparation.

One of ordinary skill in the art would understand this language to mean that the amounts of emulsifier suggested by the '551 reference can be used because it is replaced with the thickener. Therefore, the '551 gel is not self-structured; rather, it is structured by a combination of emulsifier and thickener. This is unlike the present invention where the gel is self-structured without physically adding another material to the gel to assist the low level emulsifier. This has not been taught or suggested by the '551 reference. Therefore, the '551 reference fails to render the present invention obvious, and a *prima facie* case of obviousness has not been made.

The Examiner notes that there is evidence to show that the prior art nanocmulsion gel made from the same oil/silicone oils are not "self-structured" while the present invention is. Further, the Examiner asserts that the '551 reference teaches that thickeners are used only "if possible." Applicants respectfully traverse this assertion because the "possibility" referred to by the Examiner is essentially the contingency referred to by the '551 reference. The '551 reference would be understood by one of ordinary skill in the art to reasonably teach or suggest that the emulsifier amount can be reduced contingent upon the ability to use thickener as a substitute. Thus, there is nothing "the same" about the self-structured gels of the present invention and the low volatile oil containing gels that are crosslinked or that contain either emulsifiers or thickeners in combination with the lower level of emulsifiers in the '551 reference. Applicants are clear as to the characteristics of the nanogel of the present invention.

The '551 reference teaches that its invention includes allegedly a combination of low volatile oil in the oily phase, less than 20 percent emulsifiers and lecithin in the aqueous phase. As noted above, however, lower levels of emulsifiers are achieved because it is possible to add thickeners. Further,

lecithin, itself an emulsifier, is always present in addition to the emulsifiers. Thus, the '551 reference includes the teaching that thickeners and/or lecithin are to be added to achieve a gel with lower levels of emulsifiers. Therefore, the '551 microemulsion is not self-structured. It cannot be self-structured when it is held together by a combination of low level emulsifiers with lecithin and/or thickeners. As previously presented in their Response of February 5, 2004, the term "self-structuring" as it is used in the present specification excludes gels that are made according to the teachings of the '551 reference. As described in the present specification at page 3, paragraph [0008], the self-structuring of the oil phase and the silicone component thickens the composition and makes the nanogel. More detail about thickening by self-structuring, and not by adding another physical material, is described in the present specification at page 7, paragraph [00021], where it is noted that the composition is thickened when the silicone component, the water phase, and the oil phase self-structure during the high shear/pressure treatment. Even the '551 reference recognizes the high pressure homogenization process for creating nanoemulsions; but that the principle of crosslinking leads to the gel. The '551 reference teaches that there is a difference between making a nanoemulsion and a nanogel. Thus, while the '551 reference teaches that low viscosity microemulsions or gels can be formed from simply by adding water to a mixture of components in an oil phase, it does not teach that this process will result in either a high viscosity microemulsion gel or a nanoemulsion gel. The '551 reference teaches that high viscosity microemulsion gels or nanoemulsion gels are formed by the presence of a crosslinker or the combination of an emulsifier, lecithin and/or a thickener.

One of ordinary skill in the art would understand the difference between a self-structured gel and a gel structured by a large quantity of emulsifier, or if the emulsifier quantity is reduced, by a lower quantity of emulsifier in combination with a thickener or crosslinker. In each of these cases, because the gel is structured by another physical material, namely, the emulsifier, the combination of emulsifier and thickener, or the crosslinker, the gel is not self-structured. In the present invention, the reduced emulsifier is achieved not with the addition of another physical structuring agent but by discovering what has not been known before, namely, that the silicone oil and the silicone component can be self-structured to have a unique rheological profile described in the present claims.

The rheological profile of the self-structured nanogels of the present invention are and would be recognized by one of ordinary skill in the art as being different than traditional gels. The gel of the '551 reference is similar to a traditional gel due to the fact that in order to reduce the amount of emulsifier in the gel, a physical structuring substance is added to make the gel. This is unlike the present invention. At page 5, paragraph 15, the complex viscosity of the nanogel is measured as it undergoes a breaking phenomenon. To begin, the nanogel of the present invention exhibits a stiffness that is about an order of

magnitude greater than the traditional gel made with carbopol. This difference is described in the present claims that provide that the present invention has a difference in complex viscosity of at least about 10,000 poise under oscillation stress in the range of about 0 to 5,000 (dyne/cm²). Notwithstanding this difference, the profile clearly demonstrates that there is a difference between the traditional gel and the gel of the present invention. From this it can be clearly seen that the '551 reference fails to teach or suggest self-structuring nanogels like that of the present invention. The '551 microemulsions, because they contain either contain a crosslinker or thickeners in place of emulsifiers are not self-structuring. The '551 reference fails to teach or suggest an oil-in-water nanogel that is self-structured (i.e., by itself) without thickeners or crosslinkers.

The self-structuring of the oil phase and the silicone oil component thickens the composition and makes a nanogel. As presented in the present specification at page 3, paragraph [0008], the nanogel of the present invention is made by subjecting a water phase, an oil phase, and a silicone component to a series of high shear and high pressure treatments. As a result of these treatments, the oil phase and the silicone component self-structure to make the nanogel. This is also discussed at page 6, paragraph [00017] and page, 7, paragraph [00021]. The thickening of the nanogels of the present invention occurs in the absence of traditional viscosity increasing agents (i.e., thickeners) as explained at page 4, paragraphs [00012] and [00014] of the present specification. The self-structuring of the oil phase and the silicone oil component is not taught or suggested by any of the cited references all of which use thickeners in the form of surfactants, emulsifiers, or a crosslinking substance.

The '551 and '818 References

Second, the Examiner rejects Claim 6 as being obvious in view of a combination of the '551 reference and U.S. Patent No. 4,026,818 issued to Claudelli (hereinafter referred to as the '818 reference.) The Examiner points out in response to Applicants previous arguments that the present claims are rejected in view of the collective teachings of the cited references. Applicants understand this and note that a collection is the sum of its individual parts. And, in applying this logic, Applicants were merely analyzing each reference before addressing, and in order to address the collective. This also applies to the third set of cited references discussed below. Therefore, as the collective aspect of Applicants argument seems to have been missed, it is presented again. Not only does the '818 reference use a thickener, but it uses a coupler, and therefore, the '818 compositions in combination with the '551 compositions is not a teaching or suggest of self-structuring nanogels of the present invention. Basically, as a collection, these two cited references fail to teach or suggest a self-structuring nanogel. They,

collectively teach a composition containing lecithin, which is an emulsifier, and a coupler, as well as a thickener to achieve the low level of emulsifiers.

Further, the Examiner notes that "[l]owering the concentration of emulsifier is suggested by the '818 reference. However, the '818 reference more specifically suggests at column 1, lines 49 to 50, to "lower ratios of emulsifier to oil." The ratio of surfactant to mineral oil in the '818 reference is noted at column 3, lines 2 to 5, and lines 17 to 20 as 1:1. Furthermore, the '818 reference mentions at column 1, lines 40 to 42, a high ratio of emulsifier to oil is noted as being 3:1. This actually teaches away from the present invention since it is the inverse a high ratio of emulsifier to oil, namely, a high ratio of oil to emulsifier of about 5:1 as explained at page 8, paragraph [00022]. Oil is at least five times as great as the emulsifier in the present invention. Therefore, the '818 reference fails to teach or suggest the present invention alone or in combination with the '551 reference. Applicants do not find a response to this argument.

The '377, '818, and 551 References

Another reference, Kakoki et al. (U.S. Pat. No. 5,162,377; hereinafter "the '377 reference") is cited by the Examiner in combination with the '818 and the '551 references for rendering Claims 7 to 11, 13, 15, and 16 obvious (the third set of cited references). Previously, Applicants argued that there is a two step shearing process described in Claim 7 and a three step shearing process in Claim 8 of the present invention. Therefore, the two and three steps that are minimally used with the compositions of the present invention are not taught by the '377 reference, and therefore, this reference alone and in combination with the other cited references fails to teach or suggest the present invention. In response, the Examiner finds that Claim 8 which specifically is directed to shearing three times, falls with in the prior art emulsion because it is necessarily subjected to treatment twice during the process of making the emulsion. However, Applicants point out that the ringing nanogel is not made in the prior art until 5 to 10 times. This means, according to the prior art, that after treatment three times a ringing nanogel one of ordinary skill in the art would not expect to make a ringing nanogel until an additional 3 to 7 times of treatment are applied. The surprising benefit of the present invention is that the nanogel can be made after only 3 times. This is certainly not taught or suggested by the combination of references to run the shear process 5 to 10 times. It takes less time and uses fewer resources to make the gel of the present invention that is sheared only three times. Further, the Examiner has with respect to the first set of cited references asserted that the claims of the present invention do not require a ringing nanogel. Applicants assert that as Claim 6 to 11, 13, 15, and 16 are all directed to ringing nanogels, minimally these contain allowable subject matter.

The present invention relates to ringing nanogel composition that comprises an oil phase and a silicone oil component that self-structures when treated to a high shear/pressure treatment. The self-structuring thickens the composition and makes a nanogel. Because none the cited references alone nor in combination would lead one of ordinary skill in the art to the self-structuring compositions of the present invention a *prima facie* case of obviousness has not been established. For the reasons stated above, Applicants request that the Examiner's rejection be withdrawn as Claims 1 to 3, 5 to 11, 13, 15, and 16 of the present application, as amended, satisfy the requirements of 35 U.S.C. §103(a).

CONCLUSION

In view of the arguments presented above in the present submission, the claims are believed to be in condition for allowance, and issuance of a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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